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Ice binding proteins: Functions and applications

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Periodic or continuous exposure to very low temperatures in psychrotolerant enhances production of few specific molecules that prevent them from freezing, called Psychrophiles. Psychrophiles is capable of synthesizing some important proteins & peptides that can regulate growth of ice crystals and these are named Ice Binding Proteins (IBPs). Ice binding proteins are specialized proteins that are less popular but extremely crucial. Antifreeze Proteins (AFPs) are among them only which enhance the formation of big ice grains inside the cells which damage cellular organs or cause death of cell. The unique properties of ice recrystallization inhibition (IRI) and thermal hysteresis (TH) have become one of the promising tools in industrial applications like cryobiology, food storage, and others. This review summarizes the Functions and applications of the large group of IBPs.

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